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BULL-ETIN

SAN ANTONIO RADIO CLUB

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Vice President- Joe Gallagher WA5OMB
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Meets first and third Fridays at 7:30 PM at the Red Cross Building, 90 Brees St. ALL who have an INTEREST in amateur radio are cordially invited to attend.

Bull-etin Editor, Dean Davis W5BGE Asst. Ed., Maybelle Davis, XYL
Circulation Mgr. Bob Via WB5FDT

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By The Way

By WA5QHG Bill Way

I wish to thank the members of SARC for their confidence in electing me to fill the unexpired term of Dan Perciful who found it necessary to resign for health reasons. Hurry up and get well, Dan! On Page 7 there is a list of committee appointments for the remainder of the year. The committee chairmen are underlined. (Those committees with no chairman so marked will elect a chairman.)

The purpose of the standing committees are listed in the By Laws. The Field Day, Christmas Party and Refreshments committees are self-explanitory.

The Special Committees are as follows:

Educational: To supervise code and theory and other classes offered by SARC

W5SC Control: To supervise the operations of all W5SC equipment.

Technical Advice: To advise the Club and its members in technical problems related to amateur radio.

Ladies Entertainment: To offer activities for the ladies of SARC during Club activities.

If you have been appointed to a committee, please serve with a smile! If you were not appointed but see a committee on which you desire to serve, feel free (PLEASE!!) to volunteer your services to one of the committee members. Let's have an active club. Don't be a !

73, Bill WA5QGH.

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SARC PROGRAMS By Joe WA5OMB

At 15 March Club meeting, for you would-be home brewers and for those who yearn to be state-of-the-art, Bill Ham rick K5PWX will show how to convert a bread board project into an etched circuit board using the photo-etch method.

5 April meeting: Phil Sager WB4FDT/5 will give talk and show slides on AMSAT OSCAR VI.

19 April: Floyd Roland W5JKU will host SARC members at the Electronics Department of San Antonio College. There will be many facets of electronics represented, along with a demonstration of their modern computer system.

de WA5OMB.

TECHNICAL TOPICS

By W5LFM Cal Graf

During Old Timers Night held at the SARC meeting on 18 Jan 74, and last year, we all heard a number of fantastic stories (and tales told by the old timers in our hobby. They indeed had some amazing stories to recount to those of us who have not been licensed as long. From Mother's Oats cardboard containers to making their own capacitors and winding their own coils and transformers, they suddenly find themselves launched into the space age and microminiaturization of most electronic components.

Technology is growing with giant leaps and bounds to paraphrase Neil Armstrong when he landed on the moon. To keep up with it requires great effort; to understand it is even more difficult. But the breakthroughs come from all directions and sometimes from the sea and bugs. The use of the sea as a source of electric power will be evaluated in an engineering feasibility study by Sea Solar Power of York, Pa. The concept is based on the temperature difference between the ocean's warm surface and the colder depths. In many parts of the world, this difference may be as high as 40 deg. F and this provides acceptable conditions to boil and condense thermal fluids such as propane. In a pressurized vapor state, the thermal fluid will drive a vapor turbine electric generator. Though the capital investment may be higher than regular power plants, there is no air polution, no solid waste disposal, and little thermal pollution. But then again, remember that it was a ham from SARC who invented the beer can vertical during a boiled owl party many years ago. (No the Beverage antenna was invented by Beverage, not Irv Seligman).

A gas detector which uses bacteria as a sensor element was recently introduced by Monitek Corp. The unique instrument combines sensitivity of a living biological organism with solid state electronics to detect or monitor gases of various chemical natures. The sensor is a culture of marine bacteria which produce light in response to gaseous vapors. The bacteria can be bred to respond to most gases and their sensitivity can be optimized to a particular gas or odor. An electronic amplifier circuit coupled with a precision photodetector is incorporated into a package which can be used in narcotics detection and air pollution control. We've all heard of bats in the belfrey and bugs in the beans, but bugs in the solid state has got to go.

Radio engineers, hams technicians, and students have been using the sliderule for years without knowing of its origin. Did you know that it was invented almost 120 years ago by Lt. Amedee Mannheim, of the French artillery. He used it to solve his problems at that time and we call it the "modern" slide rule. As mentioned recently in the SARC Bull-etin, the transistor recently celebrated its 25th anniversary at which time there was just one in the world. Twenty-five years later, TI announces their electronic slide rule, the SR-50, which has the most complex integrated circuits ever designed. The arithmetic circuit IC and memory circuit IC have a total of over 25,000 transistors. And this doesn't count diodes and resistors. Think of the fantastic progress made in electronic research and packaging. And we are getting in on the ground floor, just the way the old timers got in on the beginning of "wireless' 50 or 60 years ago.

The SARC Bull-etin is a very timely and informative technical news media. For years it has been talking about the Dick Tracy wrist TV. Electronic Design, however, recently came out with an item which made it feel just a bit technically warmer. ED states,"The 'Dick Tracy' wristwatch camera--once a comic strip fantasy--may not be too far off, according to guarded reports from manufacturers like GE, Fairchild, RCA and TI. These firms, working on their own competitive versions of the miniature silicon self-scanning imaging arrays, already show promise of reducing the size of a vidicon TV camera to that of a pack of cigarettes. Just think, soon someone at the SARC will be demonstrating a slow-scan TV transmitter which is able to work through the mobile repeater. All the hams unable to attend meetings will be able to see what happens at the club by tuning it in on their receivers. That will be the day, and you can zero-beat on that.

Your editor, Dean Davis, has sought to keep the SARC Bull-etin one of the best in the country and I believe he and the publishers are doing a terrific job. This column has appeared in the Bull-etin for several

years now, a tribute to Dean. But alas and alack, Radio-Electronics has come out with a like column starting in their Jan. 74 issue. And what title do you think they picked? That's right--Technical Topics! Dean was heard to mumble something about "imitation and flattery" as he put this issue of the SARC Bull-etin to rest. And so it goes.

Regards, W5LFM Cal Graf.

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TEX VHF-FM SOCIETY WINTER MEET

The Texas VHF-FM Society meeting, held 23-24 Feb at College Station, was well represented by SA-ers. Tex W5QBD brought Homer K5MEN, Pepos W5OSG, Woodie WB5DFQ and Andy WB5FZA in his motor van. Larry W5QMU, George W5VPQ, Roy W5EYB, Bob W5PKK, Chuck WB5FWI and Dean W5BGE were among the other SA-ers. Of course, Corky WB5CIT was there as one of the Aggie hosts.

Roy Albright W5EYB, our ARRL West Gulf Director, was given Honorary Life Membership to the Society and was presented a plaque in recognition of meritorius service to the Texas VHF-FM Society.

Lew McCoy W1ICP, from the staff of QST was featured speaker on Saturday. Lew reported to the group his recent discussions with the personnel of FCC regarding the probability of obtaining favorable interpretation of the new repeater regulations.

Skip Clark WB6TXX gave an informative report on the elaborate repeater linkup on the west coast.

Corky WB5CIT presented an "interesting" report on the "Aggieway" of tracking and using OSCAR VI Satellite. (Attention: Bill Way--a MUST program for the first available SARC meeting!)

In the business meeting Sunday, the Board of Directors were instructed to seek ways and means that amateurs could help support the new Emergency Medical Service regulation, if authorized by FCC, and to actively seek means of sharing frequency if such is required. It was pointed out that 450 is already a shared frequency with governmental agencies.

The next meeting of the Society will be hosted by the N. Texas Repeater Association in the Dallas-Ft. Worth area about the first weekend of August.

In spite of the fact that this meeting was held in Aggie Land and hosted by Aggie amateurs, it was a well planned session and ably handled by them--the "hospitality" was great and all seemed to have a good time! de W5BGE.
(Heard while there: There was an Aggie so STUPID that some of the other Aggies began to notice him!)

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MARRY NOT A RADIO HAM

Verily, I say unto you, marry not a Radio Ham, for he is a strange being, possessed of many devils.
He speaketh eternally in dit-da, and he spelleth his words without vowels.
He knoweth countries only by prefixes; he learneth his Geography by Zones.
He stayeth up late at nights, for reasons known only to him, and thou wouldst not believe his stories if he told you!
And when he courteth his damsel, he keepeth a Log Book; when he maketh a trip, he views not the scenery, but looks for Antennas.
He picketh his seat in the car by the rig therein, and not by the damsel beside him.
He holdeth a damsel's hand only to measure the fist, and he enbraceth only to test the strength of the muscles.
He checketh the vibrations of her heart with WWV and he reckoneth her strength of raising antennas.
Verily, though she expecteth chocolates when he calleth, she openeth the package to find Filter Chokes!

de YL HARMONICS--de YL BEAM, South African Women's Radio Club--
de Ruth K5OPT.

CLAY COMMENTS

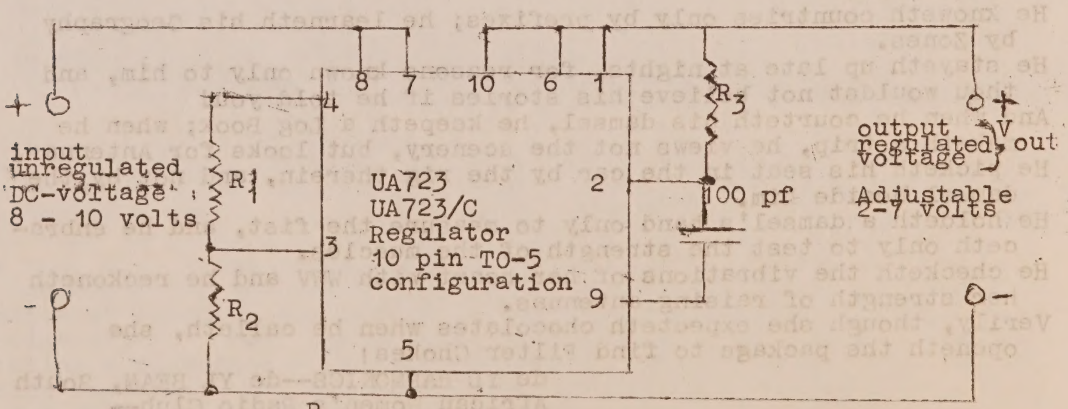
IC VOLTAGE REGULATED POWER SUPPLIES

By CLAY W5ZPV

The quest for a teleprinter demodulator has led the author into a quest for technical data concerning the design of power supplies suitable for low power solid state equipments. The purpose of this paper is to present some ideas which may be applicable to hams experimenting with solid state and IC devices. (The quest for the optimum frequency shift demodulator has not diminished--the author is experimenting with Signetics 565 Phase Locked Loop IC's for use in the demodulator project. More on this will be presented next month.)

Inexpensive Integrated Citcuit Chips for use in regulating power supplies are available from such sources as Radio Shack, Poly Paks, or Solid State Sales. Two typical IC regulators will be covered to show how they may be employed to provide laboratory precision power supply regulation. These regulators not only provide constant voltage output under widely ranging load conditions--they reduce the AC voltage ripple to levels of approximately 0.01 percent. The Signetics UA723/723C regulates voltage levels from 2 to 37 volts (adjustable in two separate voltage ranges), handles current up to 150 mA, and dissipates up to 800 milliwatts. The UA723/723C is available either in the 10 pin circular L package (size of the TO-5 can) or a 16 pin flat pack. The UA723/723C costs approximately $0.75 to $1.25 depending on the source. This IC is excellent for moderate power regulation for current levels up to 150 mA. For breadboard construction or one-time projects, it is recommended that the UA723/723C IC's be installed in Radio Shack 276-028 Experimenter IC Sockets. These sockets provide sufficient mounting space for installing circuit components right on the printed circuit for the 2-to-7 volt adjustable range. This circuit is the one which provides the typical plus or minus 5 volt supply for many IC chips. Figure 2 is the circuit for the 7-to-37 volt adjustable range. The values of the R1 and R2 voltage divider network are calculated as indicated. The sum of R1 and R2 in each case should not exceed 5,000 to 10,000 ohms. If an adjustable voltage range is desired, then R1-R2 can be a potentiometer or 5k to 10k ohms. The reference voltage generated within the UA723/723C is approximately 7.15 volts.

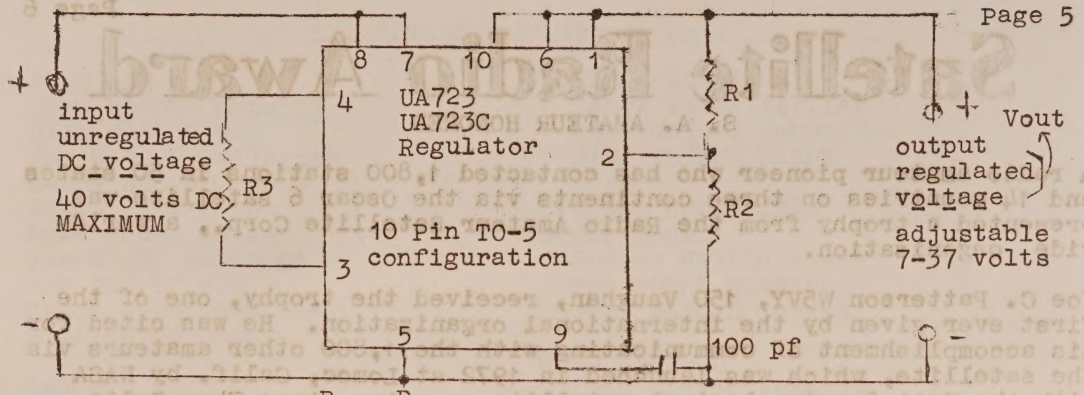
The Signetics LM309 and the Fairchild 7800-series three terminal voltage regulators represent the second type of regulator covered in this paper. While this class of regulator generally costs more (ranging from $2.25 to $2.75 from the above suppliers), they are simpler to use in circuits and handle up to one ampere of current. The LM309 normally is available in the TO-66 type can and should be mounted with appropriate heat sink hardware. The Fairchild 7800 series regulators come in the plastic TO-220 package or the TO-3 can. The last two digits of each number indicate the output voltage level. For example, the UA7805 is a 5 volt regulator, the UA7812 is a 12 volt regulator. Figure 3 is a schematic of a dual regulated power supply which makes



$$V_{out} = \left[7.15 \times \frac{R_2}{R_1 + R_2}\right] \quad \text{where } R_1 + R_2 \cong 5K \text{ ohms}$$

$$R_3 = \frac{R_1 \times R_2}{R_1 + R_2} \cong 2.5 \text{ K ohms}$$

Figure 1: 2 - 7 volt power supply regulator



$$V_{out} = \left\{7.15 \times \frac{R_1 + R_2}{R_2}\right\} \quad \text{where } R_1 + R_2 \simeq 5K \text{ ohms}$$

$$R_3 = \frac{R_1 \times R_2}{R_1 + R_2} \simeq 2.5K \text{ ohms}$$

Figure 2 — 7 - 37 Volt Power Supply Regulator

use of only one supply transformer. This dual power supply can be used to provide a plus, minus source for such applications as operational amplifiers since the outputs are isolated. Either side of either output can be grounded. This supply makes use of the Signetics LM309 regulator. However, the Signetics UA723/723C or the Fairchild 7800 series can be used as the regulator device provided that current limitations are observed. Silicon rectifiers (diodes D1, D2, D3, and D4) may be any type which will handle 50 volts, peak-to-peak, and currents up to one ampere.

Acknowledgment is made to Signetics for technical data on the UA723/723C voltage regulator circuits. Acknowledgment is made to WØMDL (USAF MARS License AFØMDL), Lindley Holmes, and the Nov-Dec 73 USAF MARS NEWSLETTER, for the dual regulated power supply shown in Fig.3.

73, Clay W5ZPV.

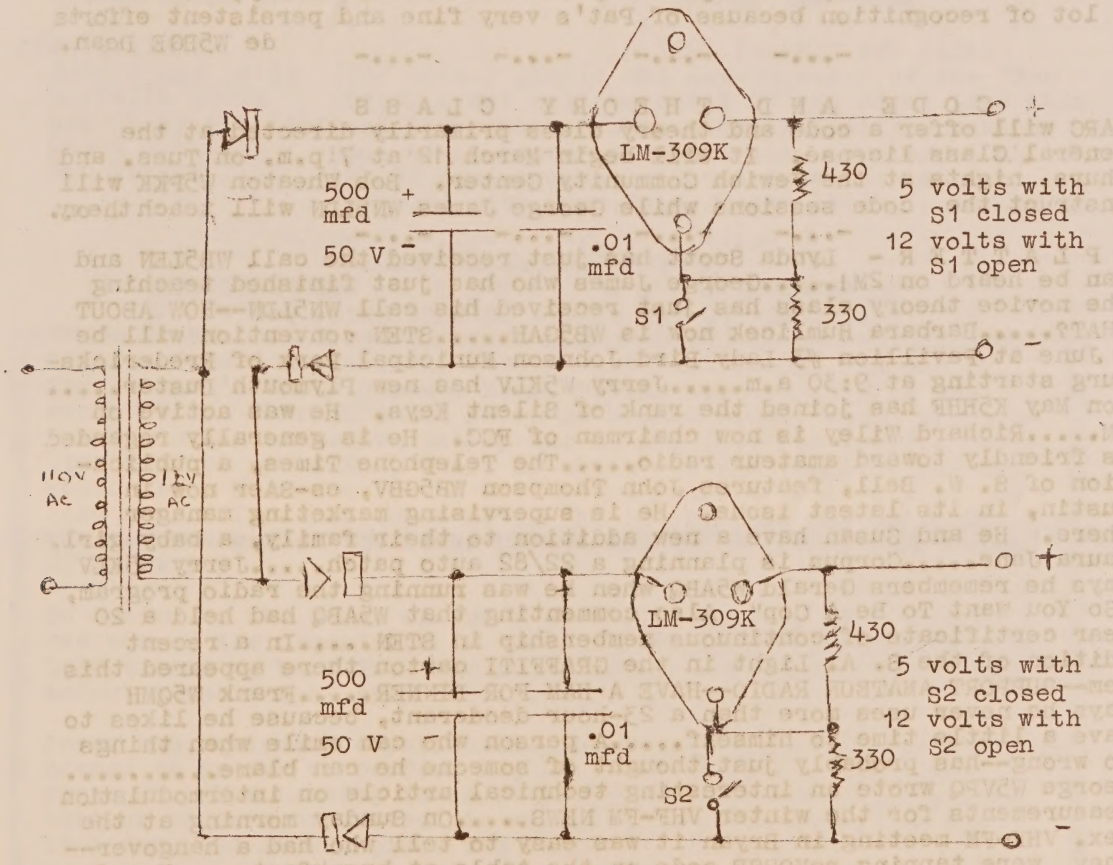


Figure 3 - Dual Regulated Power Supply

de W5ZPV Clay Laster.

Satellite Radio Award

S. A. AMATEUR HONORED

A radio amateur pioneer who has contacted 1,800 stations in 50 states and 14 countries on three continents via the Oscar 6 satellite was presented a trophy from the Radio Amateur Satellite Corp., a world-wide organization.

Joe C. Patterson W5VY, 150 Vaughan, received the trophy, one of the first ever given by the international organization. He was cited for his accomplishment of communicating with the 1,800 other amateurs via the satellite, which was launched in 1972 at Lomoc, Calif. by NASA with the NOAA-2 meterological satellite on a two-stage Thor-Delta launch vehicle.

Patterson said the Oscar 6 orbits the Earth every 115 minutes and allows him to transmit information for about 20 minutes. The satellite has a radio beacon to guide the amateur. He said the ultimate purpose of the satellite is to be ready to help transmit information during disasters. The procedure involves the amateur transmitting a signal to the satellite on two meters. The satellite then retransmits the signal down to Earth on the ten meter band.

Patterson was presented his trophy by Roy L. Albright W5EYB, director of the West Gulf Division of the American Radio Relay League. Mr. Albright commented that Patterson has devoted thousands of hours to perfect his knowledge of these techniques, and further stated that the potential for amateurs to render public service to the entire world by furnishing communications during times of great catastrophe through the use of satellites is unlimited.

A story and picture showing W5VY receiving his award was in the San Antonio Light Sunday, January 27. Other area publications included: Military Service News, 15 Feb 74, The Flying Times of 15 Feb 74, FAA Southwest Intercom and the March issue of the Security Service SPOKE-MAN. Amateur radio, but especially satellite radio relay, received a lot of recognition because of Pat's very fine and persistent efforts

de W5BGE Dean.

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C O D E A N D T H E O R Y C L A S S

SARC will offer a code and theory class primarily directed at the General Class license. It will begin March 12 at 7 p.m. on Tues. and Thurs. nights at the Jewish Community Center. Bob Wheaton W5PKK will instruct the code sessions while George James WN5LDN will teach theory.

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S P L A T T E R - Lynda Scott has just received the call WB5LEN and can be heard on 2M!.....George James who has just finished teaching the novice theory class has just received his call WN5LDN--HOW ABOUT THAT?.....Barbara Humlicek now is WB5GAH.....STEN convention will be 8 June at Pavillion #3 Lady Bird Johnson Municipal Park of Fredericksburg starting at 9:30 a.m.....Jerry W5KLV has new Plymouth Duster..... Don May K5HHF has joined the rank of Silent Keys. He was active on 2M.....Richard Wiley is now chairman of FCC. He is generally regarded as friendly toward amateur radio.....The Telephone Times, a publication of S. W. Bell, features John Thompson WB5GBV, es-SAer now in Austin, in its latest issue. He is supervising marketing manager there. He and Susan have a new addition to their family, a baby girl, Laura Jane.....Corpus is planning a 22/82 auto patch.....Jerry W5KLV says he remembers Gerald W5ABQ when he was running the radio program, "So You Want To Be A Cop" Also commenting that W5ABQ had held a 20 year certificate of continuous membership in STEN.....In a recent edition of the S. A. Light in the GRAFFITI carton there appeared this gem--SUPPORT AMATEUR RADIO--HAVE A HAM FOR DINNER.....Frank W5QMH says he never uses more than a 23-hour deoderant, because he likes to have a little time to himself.....A person who can smile when things go wrong--has probably just thought of someone he can blame..... George W5VPQ wrote an interesting technical article on intermodulation measurements for the winter VHF-FM NEWS.....On Sunday morning at the Tex. VHF-FM meeting in Bryan it was easy to tell who had a hangover--they were tapping reMORSE code on the table at breakfast.....Heard on 34/94 the other day: "Anyone on frequency?" Someone answered,"Just us chickens, Boss!"

de Dean W5BGE.

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Gladys Way

CHRISTMAS PARTY
Dean W5BGE Davis

REFRESHMENTS
Barbara WB5GAH Humicek
Mike WA5GAI Rittmann

7290 TRAFFIC NET PICNIC

The annual picnic and get-together of the 7290 Traffic Net will be April 27 and 28 at Lake Whitney State Park, Texas. Camping sites, cabins and motel rooms are available. Registration is $2.00 per person. Mail to Jane Eastman, Rt1 Box 432, New Braunfels, Texas 78130. de K5HZR.

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S I L E N T K E Y

W5ABQ JOINS RANK OF SILENT KEY 21 FEB . 74

William Jerald Morgan, 64, better known as "Jerry" was one of San Antonio's truly pioneer hams, having started back in the early 20's. Through these years he became widely known throughout Texas and elsewhere mainly due to his love for traffic handling and net operation, chief of which was the Texas CW Net and South Texas Emergency Net. He devoted years of activity to and held many offices in these nets. At the time of his death he was net manager of the Texas CW Net and the editor of the Texas CW Bulletin.

He served as the first chairman of the SA chapter of QCWA and was one of its organizers in 1968. In addition to membership in SARC extending back into the 20's, he was a constant worker and ardent supporter of ARRL activities.

Jerry had equipment capabilities for higher power but nevertheless seemed to prefer to perform his many achievements with lower power CW. His heavily taxed heart, which he put fervently into amateur radio contributed his energies in this pursuit to the last day, but it had given its all.

W5ABQ's passing leaves a great void in amateur radio, but will be remembered for his many contributions to the pursuit which he loved so well. de Les Essington W5BE.

NEWS AND VIEWS FROM THE ARRL DIRECTOR, WEST GULF DIV.

During the January board meeting this director became a member of the League's Executive committee, and was appointed Chairman of the International Affairs committee. In order to give proper attention to these new tasks, particularly because of the need to devote considerable time in assisting the League planning for the 1979 ITU Conference where all our frequencies are at stake I felt it necessary to resign as board liaison to the VHF Repeater Advisory committee. I took this latter action most reluctantly. However, our greatly improved relationship with FCC in regard to repeater regulations (as evidenced by the several favorable changes in those rules indicated that assignment of another director to VRAC would not impede further work in that direction.

ARRL Counsel Booth has filed reply comments to the proposal to reassign a portion of 450 to the Emergency Medical Radio Service and informs me he is now quite hopeful the threat upom our 420-450 band has been successfully countered.

Also, in accordance with the board's request, Counsel Booth has filed a request for rewording of repeater regulations to permit cross-band operation of repeaters when in and out frequencies are within bands available for repeater stations. We expect this proposal also to receive favorable action by the ommission

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Some bad news: Effective 1 May, the cost of an amateur license will be $10.00. ---------- Good news or bad? Last week the FCC found over 50 Citizen Band ops in the Fort Worth area in violation of FCC rules. Looks like Fox Charlie Charlie is finally trying to do something about that problem! Let's continue to be especially careful in the amateur bands that WE obey the rules.

John Shean, W5LPO, and Les Essington, W5BE, are considering organizing a DX section of the San Antonio Radio Club. Sounds like a great idea. Those whose primary interest in amateur radio is chasing DX are urged to contact either of these two gentlemen.

Last week ye director visited the Dallas area for a pleasant luncheon meeting at the Engineer Club, an evening meeting with the Convention Committee in Euless, and next evening at the Dallas Amateur Radio Club. Our host at the Engineer Club was Thad Johnson, W5IRQ, former prexy of SARC. Dallas club attendance was well over 100. Outgoing prexy Jim LaPorta, W5QGZ, introduced Jim Haynie, WB5JBP as the new president. I was pleasantly surprised to note the greatly increast interest and g owth in the Dallas club over that observed at my last visit, and certainly pleased to be elected an honorary member.

Communications via satellite is rapidly opening a new world in the VHF/UHF region. Oscar VI is still active; Oscar VII is about ready for launch. In addition to the numerous articles published in QST on this subject ARRL has prepared two pamphlets designed to acquaint radio amateurs and prospective amateurs with this fascinating aspect of communications. One, for general amateur use is titled Member's Guide to Amateur Satellites. The otheris "Space Science Involvement in the Classroom," with curriculum supplement. Both are available from League Headquarters. Science teachers who happen to be amateurs especially should be interested. Too, it is conceivable some club members might wish to form a Space Communications Section of the club. In that event too these pamphlets would prove most useful..

73,

ROY L. ALBRIGHT, W5EYB, Director, West Gulf Division, ARRL.